

**ABSTRACT OF THE DISCLOSURE**

An apparatus and method for performing channel estimation in an OFDM (Orthogonal Frequency Division Multiplexing) system using multiple antennas, and a method for performing channel estimation using received sub-carriers in an OFDM system for receiving a sub-carrier having a training symbol and another sub-carrier having no training symbol comprising the steps of: a) differently setting a weight associated with a reliability of the sub-carrier having the training symbol and a weight associated with a reliability of the sub-carrier having no training symbol, b) measuring channel estimation errors associated with individual received sub-carriers, and c) performing channel estimation using the measured channel estimation errors and the set weights.